

Dynamics of an impurity in a trapped one-dimensional Bose gas

mercredi 7 février 2024 12:00 (30 minutes)

An impurity in a Bose gas is a topical cold-atom system that allows one to investigate dynamics of quasi-particles in tunable environments. This set-up is often studied theoretically using homogeneous models, which neglect trapping potentials present in experiments. In this talk, I will consider the effect of an external confinement, and also the effect of temperature in quench dynamics using a Caldeira-Leggett (harmonic bath) model. I will argue that these effects affect the dynamics of one-dimensional systems, and must be taken into account when interpreting existing experimental data.

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